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Sanjiv Nanda

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EXAMINER

CAI, WAYNE HUU

ART UNIT

PAPER NUMBER

2617

NOTIFICATION DATE

DELIVERY MODE

03/25/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/628,955	<b>Applicant(s)</b> NANDA ET AL.	
	<b>Examiner</b> WAYNE CAI	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/3/10</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see Remarks, filed February 01, 2011, with respect to the rejection(s) of claim(s) 1-50 under Liu et al. (US 7,072,315) in view of Shiobara (US 5,535,214) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Rinne et al. (hereinafter "Rinne", US 6,693,892) in view of Shiobara (US 5,535,214) and further in view of Rusu et al. (US 5,938,749).

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on December 03, 2010 was filed after the mailing date of the Non-Final Office Action on November 02, 2010. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 39-46 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Specifically, the Examiner respectfully suggests the Applicant to amend the phrase “a computer readable medium” to either “a non-transitory readable medium” or “a tangible computer readable medium” to exclude the “signal” as being the computer readable medium, wherein the signal is directed to non-statutory subject matter.

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 2, 5, 9, 11, 14, 16, 17, 20, 24, 26, 31, 32, 35, 39, 40, 43, 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rinne et al. (hereinafter “Rinne”, US 6,693,892) in view of Shiobara (US 5,535,214. Note: Applicant’s cited reference) and further in view of Rusu et al. (hereinafter “Rusu”, US 5,938,749).

**Regarding claim 1, 16 and 39**, Rinne discloses in a communication system, a method for determining a data rate for reverse link communication from a mobile station to a base station comprising:

determining packets of data for transmission from the mobile station for a number of communication services (abstract, Figures 6 & 8 and its descriptions);

Rinne, however, does not expressly disclose the remaining features of these claims.

In a similar endeavor, Shiobara discloses a method for timely processing of transmission and reception request. Shiobara also discloses:

determining a transmission deadline of each of said packets of data (i.e., to calculate a margin time or deadline as described at col. 7, lines 21-54).

arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline (i.e., to arrange packets based on urgencies, deadline or timeout as described at col. 7, lines 30-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rinne's invention and arrive at the present invention by including the above features.

The motivation/suggestion for doing so would have been to optimize the transmission throughput.

The combination of Rinne and Shiobara does not expressly disclose determining a data rate for transmission of the packets of data based on the arrangement of said packets of data in said queue allowing for meeting the transmission deadline for each of said packets of data.

In a similar endeavor, Rusu discloses a queue measurement apparatus. Rusu also discloses determining a data rate for transmission of the packets of data based on the arrangement of said packets of data in said queue allowing for meeting the transmission deadline for each of said packets of data and transmitting, with a

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transmitter, the packets of data at the determined data rate (col. 9, line 66 - col. 10, line 13 and col. 14, lines 10-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rinne and Shiobara's invention and arrive at the present invention by including the above features.

The motivation/suggestion for doing so would have been to provide more complete and comprehensive information on the available storage capacity and rate utilization of the queue on an ongoing basis.

**With further regard to claim 31**, Rinne, Shiobara and Rusu disclose all features of this claim. In addition, a processor in the mobile station is implicitly taught by these references.

**Regarding claims 9 and 24**, Rinne discloses in a communication system, a method for determining a data rate for reverse link communication from a mobile station to a base station comprising:

determining packets of data for transmission from the mobile station for a number of communication services (abstract, Figures 6 & 8 and its descriptions);

Rinne, however, does not expressly disclose the remaining features of these claims.

In a similar endeavor, Shiobara discloses a method for timely processing of transmission and reception request. Shiobara also discloses:

determining a transmission deadline of each of said packets of data (i.e., to calculate a margin time or deadline as described at col. 7, lines 21-54).

arranging the packets of data in a number of queue arrangements for transmission in accordance with said determined transmission deadline (i.e., to arrange packets based on urgencies, deadline or timeout as described at col. 7, lines 30-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rinne's invention and arrive at the present invention by including the above features.

The motivation/suggestion for doing so would have been to optimize the transmission throughput.

The combination of Rinne and Shiobara does not expressly disclose determining a data rate for transmission of the packets of data based on the arrangement of said packets of data in said queue allowing for meeting the transmission deadline for each of said packets of data.

In a similar endeavor, Rusu discloses a queue measurement apparatus. Rusu also discloses determining a number of data rate for transmission of the packets of data based on the number of possible queue arrangements and transmitting, with a transmitter, the packets of data in accordance with at least one of the determined data rates (col. 9, line 66 - col. 10, line 13 and col. 14, lines 10-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rinne and Shiobara's invention and arrive at the present invention by including the above features.

The motivation/suggestion for doing so would have been to provide more complete and comprehensive information on the available storage capacity and rate utilization of the queue on an ongoing basis.

**Regarding claims 2, 17, 32 and 40**, Rinne, Shiobara and Rusu disclose all limitations recited within claims as described above. Rinne also discloses communicating said data rate from said mobile station to said base station (Figure 6 and its descriptions).

**Regarding claims 5, 20, 35 and 43**, Rinne, Shiobara and Rusu disclose all limitations recited within claims as described above. Rinne also discloses further comprising: determining whether available resources allows for allocation at said base station for transmission from said mobile station at said data rate (abstract).

**Regarding claims 11 and 26**, Rinne, Shiobara and Rusu disclose all limitations recited within claims as described above. Rinne also discloses communicating said number of data rates from said mobile station to said base station (Figure 6 and its descriptions).

**Regarding claim 14**, Rinne, Shiobara and Rusu disclose all limitations recited within claims as described above. Rinne also discloses determining whether available

resources allows for allocation at said base station for transmission from said mobile station at least one of said number of data rates (Figure 6 and its descriptions).

**Regarding claims 49 and 50**, Rinne, Shiobara and Rusu disclose all limitations recited within claims as described above. Although Rinne, Shiobara and Rusu do not expressly disclose examining deadlines for all of the packets or a first packet in the queue to determine the data rate for transmissions; Rinne, Shiobara and Rusu expressly disclose examining the deadlines of packets in order to determine the data rate for transmissions. Hence, it is obvious and/or well known in the art to modify these teachings and arrive at the present invention to include the claimed features simply based on the design choice. That is to selectively examine deadlines of a particular packet as desired to determine the data rate.

The motivation/suggestion for doing so would have been to improve throughput rates.

6. Claims 3, 4, 12, 13, 18, 19, 27-29, 33, 34, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rinne et al. (hereinafter "Rinne", US 6,693,892) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference) in view of Rusu et al. (hereinafter "Rusu", US 5,938,749) and further in view of Sherman (US 2003/0161340).

**Regarding claims 3, 18, 33 and 41**, Rinne, Shiobara, and Rusu disclose all limitations recited within claims as described above. As discussed above in the

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rejections of independent claims, this combination of references also discloses determining data rate for transmissions of the packets of data based on the arrangement of said packets of data in said queue. The combination of these references, however, does not expressly disclose determining duration.

In a similar endeavor, Sherman discloses a method and system for optimally serving stations on wireless LANS. Sherman also discloses determining duration (i.e., HC determines duration as described at paragraph 0040).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references altogether.

The motivation/suggestion for doing so would have been to optimize performance for efficient use of the medium.

**Regarding claims 4, 19, 34 and 42,** Rinne, Shiobara, Rusu and Sherman disclose all limitations recited within claims as described above. Sherman also discloses communicating said determined duration from said mobile station to said base station (i.e., to transmit duration of the slot and the CCI as described at paragraphs 0038-0040).

**Regarding claims 12 and 27,** Rinne, Shiobara, and Rusu disclose all limitations recited within claims as described above. As discussed above in the rejections of independent claims, Rusu discloses determining number of data rates for transmissions of the packets of data based on the arrangement of said packets of data in said queue.

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The combination of these references, however, does not expressly disclose determining duration.

In a similar endeavor, Sherman discloses a method and system for optimally serving stations on wireless LANS. Sherman also discloses determining duration (i.e., HC determines duration as described at paragraph 0040).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references altogether.

The motivation/suggestion for doing so would have been to optimize performance for efficient use of the medium.

**Regarding claims 13 and 28**, Rinne, Shiobara, Rusu and Sherman disclose all limitations recited within claims as described above. Sherman also discloses communicating said determined duration from said mobile station to said base station (i.e., to transmit duration of the slot and the CCI as described at paragraphs 0038-0040).

**Regarding claim 29**, Rinne, Shiobara, Rusu and Sherman disclose all limitations recited within claims as described above. Rinne also discloses determining whether available resources allows for allocation at said base station for transmission from said mobile station at least one of said number of data rates (abstract).

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7. Claims 6, 15, 21, 36 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rinne et al. (hereinafter "Rinne", US 6,693,892) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference) in view of Rusu et al. (hereinafter "Rusu", US 5,938,749) and further in view of Vadgama (US 2003/0083069).

**Regarding claims 6, 21, 36 and 44**, Rinne, Shiobara and Rusu disclose all limitations recited within claims as described above, but do not expressly disclose indicating a congestion level alert to said mobile station when said determining available resources disallow for allocation at said base station for transmission from said mobile station at said data rate.

In a similar endeavor, Vadgama discloses cell selection. Vadgama also discloses indicating a congestion level alert to said mobile station when said determining available resources disallow for allocation at said base station for transmission from said mobile station at said data rate (MS obtains congestion levels as described at paragraphs 0101 and 0122).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify these cited references' invention and arrive at the present invention by including an indication of a congestion level.

The motivation/suggestion for doing so would have been to optimize efficient usage of cell capacity.

**Regarding claim 15**, Rinne, Shiobara and Rusu disclose all limitations recited within claims as described above, but do not expressly disclose indicating to said mobile

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station when said determining available resources allows for allocation at said base station for transmission from said mobile station at least at one of said data rates.

In a similar endeavor, Vadgama discloses cell selection. Vadgama also discloses indicating to said mobile station when said determining available resources allows for allocation at said base station for transmission from said mobile station at least at one of said data rates (i.e., to share transmission channel from base stations to indicate which base station is better, which means have available resource for use by the mobile stations as described at paragraph 0122).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify these references' invention and arrive at the present invention by including an indication of available resources allowed for allocation.

The motivation/suggestion for doing so would have been to optimize efficient usage of cell capacity.

8. Claims 7, 22, 37 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rinne et al. (hereinafter "Rinne", US 6,693,892) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference) in view of Rusu et al. (hereinafter "Rusu", US 5,938,749) in view of Vadgama (US 2003/0083069), and further in view of Holden (US 6,134,218. Note: Applicant's cited references).

**Regarding claims 7, 22, 37, and 45**, Rinne, Shiobara, Rusu and Vadgama disclose all limitations recited within claims as described above, but do not expressly

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disclose dropping at least a packet of data of said packets of data in said queue to determine a new queue of packets of data and determining a new data rate for transmission of said new queue of packets of data, wherein said new data rate is lower than said data rate.

In a similar endeavor, Holden discloses many dimensional congestion detection system and method. Holden also discloses dropping at least a packet of data of said packets of data in said queue to determine a new queue of packets of data (col. 9, lines 29-34) and determining a new data rate for transmission of said new queue of packets of data, wherein said new data rate is lower than said data rate (col. 9, lines 45-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the cited references and arrive at the present invention by dropping a packet and determining a new data rate.

The motivation/suggestion for doing so would have been to allow effective use of system resources while able to guarantee service to certain traffic classes.

9. Claims 8, 23, 38 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rinne et al. (hereinafter "Rinne", US 6,693,892) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference) in view of Rusu et al. (hereinafter "Rusu", US 5,938,749) in view of Vadgama (US 2003/0083069) in view of Holden (US 6,134,218. Note: Applicant's cited references) and further in view of Sherman (US 2003/0161340).

**Regarding claims 8, 23, 38, and 46**, as discussed above, the cited references discloses determining data rates for transmissions of the packets of data based on the arrangement of said packets of data in said queue. The combination of references, however, does not expressly disclose determining a new duration.

In a similar endeavor, Sherman discloses a method and system for optimally serving stations on wireless LANS. Sherman also discloses determining duration (i.e., HC determines duration as described at paragraph 0040).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references altogether.

The motivation/suggestion for doing so would have been to optimize performance for efficient use of the medium.

10. Claims 10 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rinne et al. (hereinafter "Rinne", US 6,693,892) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference) in view of Rusu et al. (hereinafter "Rusu", US 5,938,749) and further in view of Berruto (EP 0 627 827. Note: Applicant's cited references).

**Regarding claims 10 and 25**, Rinne, Shiobara and Rusu disclose all limitations recited within claims as described above, but do not expressly disclose features of these claims.

In a similar endeavor, Berruto discloses a method of controlling transmission on a same radio channel. Berruto also discloses wherein said number of determined data rates include a required data rate (i.e., considered as a typical data rate as described at paragraph 0010) and at least one congestion level data rate (i.e., to determine different data rate to meet the cost due to congestion as described at paragraph 0038).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rinne, Shiobara and Rusu's invention and arrive at the present invention by including the above features.

The motivation/suggestion for doing so would have been to optimize the transmissions.

11. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable Rinne et al. (hereinafter "Rinne", US 6,693,892) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference) in view of Rusu et al. (hereinafter "Rusu", US 5,938,749) and further in view of Sherman (US 2003/0161340) and further in view of Vadgama (US 2003/0083069).

**Regarding claim 30**, rinne, Shiobara, Rusu and Sherman disclose all limitations recited within claims as described above, but do not expressly disclose indicating to said mobile station when said determining available resources allows for allocation at said base station for transmission from said mobile station at least at one of said data rates.

In a similar endeavor, Vadgama discloses cell selection. Vadgama also discloses means for indicating to said mobile station when said determining available resources allows for allocation at said base station for transmission from said mobile station at least at one of said data rates (i.e., to share transmission channel from base stations to indicate which base station is better, which means have available resource for use by the mobile stations as described at paragraph 0122).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify these references' invention and arrive at the present invention by including an indication of available resources allowed for allocation.

The motivation/suggestion for doing so would have been to optimize efficient usage of cell capacity.

12. Claims 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rinne et al. (hereinafter "Rinne", US 6,693,892) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference) in view of Rusu et al. (hereinafter "Rusu", US 5,938,749) and further in view of Bantz et al. (hereinafter "Bantz", US 5,394,433).

**Regarding claim 47**, Rinne, Shiobara and Rusu disclose all limitations recited within claims as described above. Shiobara also discloses wherein updated information relating to packet delay deadlines are available at the mobile station (i.e., having the knowledge of urgency as described at col. 6, lines 30-60). The combination of Liu and

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Shiobara, however, does not expressly disclose wherein updated information relating to the queue length available at the mobile station.

In a similar endeavor, Bantz discloses a control system for automated management of frequency-hopping in a radio network. Bantz also discloses wherein updated information relating to the queue length available at the mobile station (col. 9, line 55 col. 10, line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rinne, Shiobara and Rusu's invention by including updated information relating to the queue length available at the mobile station.

The motivation/suggestion for doing so would have been to minimize the delivery of packet to end users.

**Regarding claim 48**, Rinne, Shiobara and Rusu disclose all limitations recited within claims as described above, but do not expressly disclose wherein a resource manager allocating the negotiated Quality of Service is performed at the base station.

In a similar endeavor, Bantz discloses a control system for automated management of frequency-hopping in a radio network. Bantz also discloses wherein a resource manager allocating the negotiated Quality of Service is performed at the base station (i.e., base station allocate slots for mobile transmission, which is allocating negotiated QoS as described at col. 7, lines 47-59).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rinne, Shiobara and Rusu's invention by including a resource manager allocating the negotiated Quality of Service is performed at the base station.

The motivation/suggestion for doing so would have been to ensure that mobile stations have enough resources for transmission and also meet the channels reliability and QoS requirements.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WAYNE CAI whose telephone number is (571)272-7798. The examiner can normally be reached on Monday-Thursday from 8:00 a.m. to 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wayne Cai/  
Primary Examiner, Art Unit 2617